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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/540,659 03/31/00 BARBARELLA

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EXAMINER

HM12/0213

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ART UNIT PAPER NUMBER

1626
DATE MAILED:

02/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/540,659

Applicant(s)

BARBARELLA ET AL.

Examiner

Andrea M D'Souza

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.

- 18) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: .

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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for some thienyl-S,S-dioxide compounds, does not reasonably provide enablement for the numerous thienyl-S,S-dioxide compounds as claimed by Applicants. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice nor be apprised of the invention commensurate in scope with these claims. The specification does not give any guidance as to the full range thienyl-S,S-dioxide compounds or compositions that are light-emitting that are encompassed in the instant claims.

In *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. § 112, first paragraph, have been described. They are:

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,

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6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art.

In the instant case, Applicants are claiming thienyl-S,S-dioxide compounds or compositions that are light emitting. The nature of the organic light emitting art is that there are numerous thienyl-S,S-dioxide compounds and compositions that are light emitting materials. There is no absolute predictability even in view of the seemingly high level of skill in the art. The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any one particular thienyl-S,S-dioxide compound on its face as being light-emitting. The instant specification does not give any guidance as to the full range of thienyl-S,S-dioxide light-emitting compounds or compositions that may be encompassed by the instant claims. In order to practice the claimed invention, one skilled in the art would have to speculate which thienyl-S,S-dioxide compound or composition may be employed as light emitting in the instant claims. The number of possible light-emitting thienyl-S,S-dioxide compounds or compositions embraced by the claims would impose undue experimentation on the skilled art worker. Therefore, the broad A luminescent organic material for light emitting devices..." is not enabled because the metes and bounds of thienyl-S,S-dioxide compounds that would be light-emitting by virtue of the instant claims cannot be ascertained. As a result, the enablement is not commensurate in scope to the claims. It is suggested that Applicants limit the claims to the actual thienyl-S,S-dioxide compounds contemplated.

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "material" in claims 1-7 is a relative term which renders the claim indefinite. The term "material" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, i.e. whether the term "material" refers to a compound or a composition of matter, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 1, 2, 5, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the term "comprising" in claims 1, 2, 5, and 8 and the term "comprises" in claim 8 is an improper use of a Markush group. One of ordinary skill in the art would not be apprised of the instantly claimed inventions resulting in uncertainty or ambiguity with respect to the scope and clarity of the claimed subject matter. It is not clear from as to what groups may be included in the "material" of claims 1, 2, 5 and 8 other than the thienyl-S,S-dioxide group.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the term "having" in claim 3 is an improper use of a Markush group. One of ordinary skill in the art would not be apprised of the instantly claimed inventions resulting in uncertainty and ambiguity with respect to the scope and clarity of the claimed subject matter. It

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is not clear from as to what groups may be included in the "material" of claim 3 other than the thienyl-S,S-dioxide group.

Claim Rejections - 35 USC § 101 and 35 USC §112(2)

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 7 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 6 and 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 6 and 7 provides for the use of a luminescent material, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) Claims 1-4 are rejected under 35 U.S.C. 102(b) as anticipated Barbarella, et al., cited by Applicants. Applicants' claims appear to be drawn to thienyl-S,S-dioxide compounds which are luminescent. Barbarella, et al discloses numerous thienyl-S,S-dioxide compounds (see schemes I-III, and Table I, page 5500, and the compounds in the "Experimental Section") and that such compounds are luminescent (see for example, pg 5497 the abstract thereon, page 5502, column 2, under the heading "Conclusions", etc.). Accordingly, the disclosure of the thienyl-S,S,-dioxide compounds of the reference are anticipatory.

(b) Claims 1, 3, 4, and 5 are rejected under 35 U.S.C. 102(b) as anticipated by Pouzet, et al taken alone or taken further in view of Barbarella, et al., both cited by Applicants. Applicants' claims appear to be drawn to thienyl-S,S-dioxide compounds which are luminescent. Pouzet, et al. generally discloses thiophene 1,1-dioxides compounds and specifically 2,5-Diphenylthiophene 1,1-Dioxide (see whole document, specifically, page 1568, lines). Accordingly, the disclosure of the thienyl-S,S,-dioxide compound of the reference is considered anticipatory. Barbarella, et al. is cited merely to evidence that the thienyl-S,S-dioxide compounds have luminescent properties (see for example, pg 5497 the abstract thereon, page 5502, column 2, under the heading "Conclusions", etc.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(a) Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pouzet, et al taken alone or taken further in view of Barbarella, et al., cited by Applicants.

Applicants claims relate to thienyl-S,S-dioxide organic material that is luminescent.

Determination of the scope and content of the prior art (MPEP §2141.01)

Applicants' claims appear to be drawn to thienyl-S,S-dioxide compounds which are luminescent.

Pouzet, et al. generally discloses thiophene 1,1-dioxides compounds and specifically 2,5-

Diphenylthiophene 1,1-Dioxide (see whole document, specifically, page 1568, lines).

Barbarella, et al. discloses that the thienyl-S,S-dioxide compounds have luminescent properties

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(see for example, pg 5497 the abstract thereon, page 5502, column 2, under the heading “Conclusions”, etc.)

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

The difference between the prior art and the claims is that Pouzet et al does not disclose that the thienyl-S,S-dioxide compounds is luminescent. However, the Barbarells, et al reference does teach that thienyl-S,S-dioxide compounds are luminescent.

Finding of prima facie obviousness---rational and motivation (MPEP §2142-2413)

Therefore, it would be prima facie obvious for one of ordinary skill in the art to be motivated to use thienyl-S,S-dioxide compounds as luminescent materials in light of the fact that one of the properties of the compounds is that they are luminescent.

(b) Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbarella, et al. as applied to claims 1-8 above, and further in view of Geiger, et al., both cited Applicants. Applicants' claims appear to be drawn to thienyl-S,S-dioxide compounds which are luminescent and may be used as light emitting devices.

Determination of the scope and content of the prior art (MPEP §2141.01)

Barbarella, et al discloses numerous thienyl-S,S-dioxide compounds (see schemes I-III, and Table I, page 5500, and the compounds in the “Experimental Section”) and that such compounds are organically active (the large red shifts) and thereby luminescent (see for example, pg 5497 the abstract thereon, page 5502, column 2, under the heading “Conclusions”, etc.). Geiger, et al. discloses organically active compounds may be used as organic light-emitting diodes (LEDs') (see page 92, column, and 2, the introductory paragraph).

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

Barbarella, et al discloses thienyl-S,S-dioxide compounds that are luminescent, but the reference does not disclose that these compounds may be used as LEDs'. Geiger, et al, however, discloses that organically active materials may be used as LEDs'.

Finding of prima facie obviousness---rational and motivation (MPEP §2142-2413)

It would be prima facie obvious for one of ordinary skill in the art to be motivated to employ the thienyl-S,S-dioxide compounds as LEDs' because these compounds have been determined to be organically active. Additionally, it is well known in the art that organic LEDs' may come in various forms where light is emitted, including contacts. Therefore, it would be prima facie obvious for one of ordinary skill in the art to be motivated to employ thienyl-S,S-dioxide compounds as LEDs' (contacts).

(c) Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Pouzet, et al taken alone or taken further in view of Barbarella, et al., and in further view Geiger, et al, all cited by Applicants. Applicants claims are drawn to thienyl-S,S-dioxide compounds that are luminescent and may be used as light-emitting devices.

Determination of the scope and content of the prior art (MPEP §2141.01)

. Applicants' claims appear to be drawn to thienyl-S,S-dioxide compounds which are luminescent. Pouzet, et al. generally discloses thiophene 1,1-dioxides compounds and specifically 2,5-Diphenylthiophene 1,1-Dioxide (see whole document, specifically, page 1568, lines). Barbarella, et al. is cited merely to evidence that the thienyl-S,S-dioxide compounds have

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luminescent properties (see for example, pg 5497 the abstract thereon, page 5502, column 2, under the heading "Conclusions", etc.). Geiger, et al. discloses oligothiophenes may be used as organic light-emitting diodes (LEDs') (see page 92, column, 2, the introductory paragraph).

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

Pouzet et al together with Barbarella, et al discloses thienyl-S,S-dioxide compounds that are luminescent, but the references do not disclose that these compounds may be used as LEDs'. Geiger, et al, however, discloses that organically active materials may be used as LEDs'.

Finding of prima facie obviousness---rational and motivation (MPEP §2142-2413)

It would be prima facie obvious for one of ordinary skill in the art to be motivated to employ the thienyl-S,S-dioxide compounds as LEDs' because these compounds have been determined to be organically active. Additionally, it is well known in the art that organic LEDs' may come in various forms where light is emitted, including contacts. Therefore, it would be prima facie obvious for one of ordinary skill in the art to be motivated to employ thienyl-S,S-dioxide compounds as LEDs' (contacts).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea M D'Souza whose telephone number is (703) 305-0811. The examiner can normally be reached on Monday through Thursday from 8:30 to 6:30 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K McKane, can be reached on (703) 308-4537. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-9721.

DEBORAH C LAMBKIN
PRIMARY EXAMINER

Deborah C. Lambkin

Deborah C. Lambkin
Primary Patent Examiner
Art Unit 1626

AMD/ February 8, 2001